Course Syllabus

SIE 507 Information Systems Programming

Course Description

Programming for those envisioning careers focused on developing and managing information systems, databases and web-based information systems. Data structures, algorithms, their analysis and basic principles of software design such as abstraction. This course is tailored for graduate students in information systems and spatial information engineering with little to no previous programming experience that have a need for practical in depth Java programming skills. Depending on entering skill levels, different people may pursue different assignments in the course. The primary objective it to increase your programming skills through this course regardless of where you start.

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Prerequisites
SIS or MSIS students, of permission of the instructor
The students need to have a laptop computer for exercises in the plenary sessions.

Course texts
Walter Savitch: Java - An Introduction to Computer Science and Programming.

Powerpoint slides of lecture material will be available.

Course Goals and Objectives

• Introduce students to central concepts of information processing systems
• Develop an understanding of software development environments
• Acquire essential computer programming skills

Faculty Information
Dr. Reinhard Moratz
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Contact me by email to arrange a time to meet.

Grading, Class Policies and Course Expectations

As a graduate level course, you are expected to exhibit high quality work that demonstrates sound understanding of the concepts and their complexity. Earning an “A” represents oral and written work that is of exceptionally high quality and demonstrates superb understanding of the course material. A “B” grade represents oral and written work that is of good quality and demonstrates a sound understanding of course material. A “C” grade represents a minimally adequate completion of assignments and participation demonstrating a limited understanding of course material.

Grading criteria:

Assignments – 60%
Class participation 40%
Academic honesty
Academic honesty is expected. Plagiarism is unacceptable in this course and will result in a failing grade.

Students with disabilities
If you have a disability for which you may be requesting an accommodation, please contact Ann Smith, Coordinator of Services for Students with Disabilities (Onward Building, 581-2319), as early as possible in the term.

E-Learning Approach
**Live Broadcast:** Available at http://connect.maine.edu/sie570. Online students may view and participate in the live sessions but are not required to do so. It is recommended that you view the videos at your own leisure.

**Archived Broadcasts:** Links to the class broadcasts are made available at the end of each day through the Lectures and Assignments web page.

**End of Week Live Audio Chat:** Distance students view the lectures at times of their own choosing during the week and attempt the assignments posted on the course web site prior to the end of week evening live discussion session. The audio technology used for these sessions is through ConnectPro and/or through use of a Skype Conference call. The optional end-of-the-week late afternoon discussion session runs from 6:00-7:30 pm unless another mutually agreed upon time is arranged. (Note: Set up a personal world clock at http://www.timeanddate.com to track the equivalent time in your time zone.)

**Distance Student Live Audio Chat Process:** Simply go to the ConnectPro web site established for the course and use the audio facilities or the written chat to ask questions. This session is voluntary and is intended to allow students to ask questions about the reading assignments, written assignments, and video lectures. Assignments for the past week are then due Sunday evening. If no students join in the first half hour of the session the instructor may sign off and you may want to later consider contacting him/her by Skype for a one-on-one conversation if desired.

**Skype Requirement:** Distance students must also have a Skype account for this course (see http://www.skype.com). Please forward your Skype username to the instructor after enrolling in the course. If the ConnectPro technology fails for an evening discussion session, the instructor may initiate a conference call on Skype.

Communications
All students must have a FirstClass account for this course. If you do not yet have an account, see http://it.umaine.edu/support/firstclass/index.php. You will communicate with other classmates and the instructor through the SIE 570 FirstClass folder and deliver all out-of-class assignments to the FirstClass assignment folder for the course. I recommend that you download the FirstClass client software to your computer if you have not already done so. You should always be able to deliver your materials and access the materials of others by logging on to the FirstClass website or by using the client software.
Course topics:

Week 1
Course introduction and overview
Introduction to computers
Overview about programming languages

Week 2
Introduction to Java
Origins of the Java language
Running a Java program

Week 3
Primitive Types
Assignment statements
The class string

Week 4
Simple console input and output
Program style
Program comments

Week 5
Flow of control
Branching mechanism
Boolean expressions

Week 6
Loops
Debugging
Break and exit statements

Week 7
Programming as a team
Documentation
Stepwise refinement method

Week 8
Object oriented programming paradigm
Class definitions
Instance variables

Week 9
Programming with Methods
Parameters
Recursive methods

Week 10
Static methods and variables
Arrays
Packages
Week 11
Inheritance
Overriding a method definition
Encapsulation

Week 12
Polymorphism
Abstract classes
Exception Handling

Week 13
Streams and File I/O
Text files
Random access to binary files

Week 14
Generics
ArrayList class
Linked lists

Week 15
UML
User interface design
Usability testing